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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KAZUNARI MOTOHASHI

Appeal 2008-5527
Application 10/613,371
Technology Center 1700

Decided: November 26, 2008

Before CHARLES F. WARREN, PETER F. KRATZ, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL

Applicant appeals to the Board from the decision of the Primary Examiner finally rejecting claims 1 through 3 in the Office Action mailed May 26, 2006. Appellant subsequently canceled claim 2 in the Amendment filed December 13, 2007, entered by the Examiner in the Advisory Action mailed December 19, 2007. 35 U.S.C. §§ 6 and 134(a) (2002); *see* 37 C.F.R. § 41.31(a) (2007).

We affirm the decision of the Primary Examiner.

Claim 1 illustrates Appellant's invention of a magnetic recording medium, and is representative of the claims on appeal:

1. A magnetic recording medium having a magnetic layer with a thickness 50 nm or less formed over a surface of an elongated nonmagnetic support by vacuum thin film forming technique,

wherein an angle Θ which is a growth direction of magnetic particles in a longitudinal cross-section of said magnetic layer with respect to a line normal to said nonmagnetic support, satisfies the following relation:

$\Theta i - \Theta f \leq 25^{o}$

where Θi is an angle of initial growth for said magnetic layer, and Θf is an angle of final growth for said magnetic layer, and

and [sic] further wherein a deposition range is restricted such that a maximum incidence angle αi and minimum incidence angle of αf satisfies the relationship:

$\alpha i - \alpha f \leq 25^{o}$.

The Examiner relies upon the evidence in this reference (Ans. 3): [1]

Ishida	5,554,440	Sep. 10, 1996

Appellant requests review of the following grounds of rejection of claims 1 and 3 advanced on appeal by the Examiner (Supp. Br. 4 and 8): claims 1 and 3 under 35 U.S.C. § 102(b) over Ishida (Supp. Ans. 4); and claim 3 under 35 U.S.C. § 103(a) over Ishida as applied to claims 1 and 3 (Supp. Ans. 4 and 7).

The issue in this appeal is whether Appellant has patentably distinguished the claimed magnetic recording media over the magnetic recording media of Ishida.

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[1] We consider these documents: Supplemental Brief filed December 13, 2007, and Supplemental Examiner's Answer mailed February 11, 2008.

The plain language of independent claim 1, couched in product-by-process format, specifies any magnetic recording medium product having any magnetic layer that is 50 nm or less in thickness and formed on any elongated nonmagnetic support, e.g., a tape, by any vacuum thin film forming process which provides the specified vaporized ferromagnetic metallic material deposition incidence angle α relationship of $\alpha i - \alpha f \leq 25^{o}$ and thus, the specified magnetic particle growth direction angle Θ relationship of $\Theta i - \Theta f \leq 25^{o}$. *See* Spec., e.g., 7, 9, and 11-15; ¶¶ 0020, 0025, 0036-0045; and Fig. 4. *See, e.g., In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985) ("even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself") (citing, *inter alia*, *In re Brown*, 459 F.2d 531, 535 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348 (CCPA 1969)).

Indeed, it is disclosed in the Specification that the specified magnetic particle growth direction angle Θ relationship between the growth direction angles of particles initially and finally formed is achieved when the vaporized ferromagnetic metallic material deposition incidence angle α relationship between the initial and final deposition incidence angles is restricted to that claimed. Spec. 15, ¶ 0046, and Fig. 5. In this respect, claim 1 specifies only the respective relationships and not specific vaporized ferromagnetic metallic material deposition incidence angles and magnetic particle growth direction angles, as the Examiner points out. Supp. Ans. 10:10-11. Dependent claim 3 limits the products of claim 1 to magnetic recording media having magnetic layers less than 50 nm thick.

We find Ishida would have disclosed to one of ordinary skill in this art magnetic tapes prepared in a vacuum deposition apparatus. Ishida, e.g., col. 5, l. 58 to col. 6, l. 38, and Fig. 8. Ishida discloses in Figure 21 properties of magnetic tapes having a magnetic later structure shown in "FIG. 5A which was formed at the initial incident angle ϕ_i of 75° and the final incident angle ϕ_f of 60°," wherein "[a]ll the tested magnetic tapes" had the disclosed characteristics. Ishida col. 14, ll. 32-41. Ishida Figure 21 shows a graph illustrating magnetic recording media with magnetic layer thicknesses ranging from about 20 nm to about 230 nm, with respect to which Ishida discloses the characteristics of tapes with a "magnetic layer at the thickness of 50 nm or less," "the thickness of the magnetic layer exceeded 50 nm," and "the thickness range of 150 nm or larger." Ishida col. 14, ll. 42-55. The graph in Ishida Figure 21 shows an inflection point at a magnetic layer thickness of about 50 nm. "In the present invention, the thickness of the Co-O magnetic layer is preferably from 50 nm to 150 nm in view of" certain characteristics. Ishida col. 14, ll. 57-60.

We considered the record as a whole in light of Appellant's contentions, and are of the opinion that Appellant has not successfully rebutted the prima facie case of anticipation or of obviousness. With respect to the ground of rejection of claims 1 and 3 under § 102(b), Appellant contends Ishida's magnetic layer thickness range of "from 50 nm to 150 nm" does not include "50 nm" in view of Ishida's disclosure of the characteristics "at 50 nm and below" in column 14, lines 42-55. Supp. Br. 6 and 8-9. With respect to the ground of rejection of claim 3 under § 103(a), Appellant contends Ishida teaches away from the magnetic layer thickness range of

claim 3 because of a preference for the range of 50 nm to 150 nm, and the characteristics of tapes with a thickness of 50 nm and below described by Ishida with respect to Ishida Figure 21. Supp. Br. 9. With respect to the ground of rejection of claims 1 and 3 under § 102(b), Appellant further contends Ishida fails to disclose "the actual growth orientation of the dispersed magnetic particles," and that "the growth direction of the dispersed crystals is not directly proportional to the incidence angle of deposition" as shown by a comparison of the initial and final incidence angles and particle growth orientation angles of each of Specification Comparative Examples 1 and 2 in Table 1. Supp. Br. 7; Spec. 26.

The Examiner contends "the embodiments represented in [Ishida] Figure 21, especially those below 50 nm in thickness," anticipate claims 1 and 3 and render obvious claim 3 because the initial vaporized ferromagnetic metallic material deposition incidence angle ϕ_i of 75° and the final such angle ϕ_f of 60° satisfy the claimed vaporized ferromagnetic metallic material deposition incidence angle α relationship of $\alpha i - \alpha f \leq 25°$. Supp. Ans. 13. In this respect, the Examiner contends Appellant's reliance on the Comparative Examples is misplaced because the vaporized ferromagnetic metallic material deposition incidence angle α relationship and magnetic particle growth direction angle Θ relationship falls outside of the claimed relationships, and the Specification at ¶ 0046 discloses the specified vaporized ferromagnetic metallic material deposition incidence angle α relationship achieves the specified magnetic particle growth direction angle Θ relationship.

On this record, we agree with the Examiner that one skilled in this art would find described in the graph illustrated in Ishida's Figure 21, magnetic recording media embodiments in which the initial and final material deposition incidence angles of 75° and 60°, respectively, fall within the claimed vaporized ferromagnetic metallic material deposition incidence angle α relationship of $\alpha i - \alpha f \leq 25°$, and the thickness of the magnetic layer is 50 nm or less, even though the embodiments are not specifically identified on the graph. *Cf., e.g., Titanium Metals Corp. of Am. v. Banner*, 778 F.2d 775, 777-782 (Fed. Cir. 1985) (claims read on an alloy embodiment identified by data points on a graph).

In this respect, and contrary to Appellant's contentions, it is sufficient that Ishida discloses at least one embodiment falling within claims 1 and 3, the characteristics of which as described by the reference notwithstanding. *See, e.g., Rasmusson v. Smithkline Beecham Corp.*, 413 F.3d 1318, 1326 (Fed. Cir. 2005), and cases cited therein ("prior art reference need not demonstrate utility in order to serve as an anticipating reference under section 102"); *Celeritas Technologies Ltd. V. Rockwell International Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998) ("A reference is no less anticipatory if, after disclosing the invention, the reference then disparages it. Thus, the question whether a reference 'teaches away' from the invention is inapplicable to an anticipation analysis."); *Titanium Metal*, 778 F.2d at 782, *citing In re Petering*, 301 F.2d 676, 682 (CCPA 1962) ("It is also an elementary principle of patent law that when, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is 'anticipated' if *one* of them is in the prior art.").

Indeed, claim 3 is obvious over Ishida on the same basis because it is well settled that "anticipation is the ultimate of obviousness." *See In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed Cir. 1991), *citing In re Fracalossi*, 681 F.2d 792, 794 (CCPA 1982).

We are not convinced otherwise by Appellant's contentions with respect to the absence of a disclosure of the claimed magnetic particle growth direction angle Θ relationship in Ishida. The evidence in Specification ¶ 0046 that this relationship occurs when the magnetic layer is applied within the claimed vaporized ferromagnetic metallic material deposition incidence angle α relationship relied on by the Examiner, provides the factual foundation for the Examiner's position that the claimed magnetic recording medium and the magnetic recording medium disclosed in Ishida Figure 21 reasonably appear to be identical. Thus, the burden shifts to Appellant to patentably distinguish the claimed magnetic recording medium over that of Ishida by convincing argument and/or objective evidence. *See, e.g., In re Spada*, 911 F.2d 705, 708-09 (Fed. Cir. 1990); *In re Best*, 562 F.2d 1252, 1255-56 (CCPA 1977); *In re Skoner*, 517 F.2d 947, 950-51 (CCPA 1975) ("Appellants have chosen to describe their invention in terms of certain physical characteristics . . . . Merely choosing to describe their invention in this manner does not render patentable their method which is clearly obvious in view of [the reference]." (citation omitted)). Appellant has not carried the burden because the Specification Comparative Examples are insufficient for this purpose, as the Examiner points out.

Thus, Appellant has not patentably distinguished the claimed magnetic recording medium encompassed by claims 1 and 3 over Ishida.

Accordingly, we have again evaluated all of the evidence of anticipation and of obviousness found in Ishida with Appellant's countervailing evidence of and argument for non-anticipation and nonobviousness, and based thereon we and conclude that the claimed invention encompassed by claims 1 and 3 would have been anticipated as a matter of fact under 35 U.S.C. § 102(b), and that the claimed invention encompassed by claim 3 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The Primary Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

PL Initial:
sld

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